

AMENDMENTS TO THE CLAIMS

The following listing of claims will replace all prior versions and listings of claims in the application.

LISTING OF CLAIMS

1. (Currently Amended) A method for forming a scroll component comprising the steps of:

providing a metallic powder;

providing a first mold defining an involute scroll form cavity;

providing a second mold defining a hub cavity;

injecting introducing said ~~mixture~~ metallic powder into said first mold to form a green involute scroll form;

introducing said metallic powder into said second mold to form a green involute hub force;

removing said green involute scroll form from said first mold; ~~and~~

removing said green hub form from said second mold;

coupling green hub to said green involute scroll form; and

sintering said green involute scroll form to said hub form to form [[and]] an involute scroll form component.

2. (Original) The method of claim 1 further comprising the steps of:

providing a binder; and

combining the metallic powder with said binder to form a mixture.

3. (Original) The method of claim 1 wherein providing a metallic powder includes providing a powder comprising iron.

4. (Original) The method of claim 3 wherein providing a powder comprising iron further comprises providing a powder comprising elements selected from the group carbon, nickel, molybdenum, chromium, copper and mixtures thereof.

5. (Currently Amended) The method of claim 1 wherein providing a metallic powder is providing an iron powder having a mean diameter ~~are of~~ greater than 5 micrometers.

6. (Original) The method of claim 3 wherein providing a metallic powder comprising of iron includes providing a powder having elements selected from the group of 0.7-3.5% carbon, 0-10% copper, 0-5% nickel, 0-5% molybdenum, 0-2% chromium and mixtures thereof.

7. (Original) The method of claim 1 wherein sintering said green involute scroll form is sintering said green involute scroll form until said involute scroll form comprises at least 90% per volume pearlitic structure.

8. (Original) The method of claim 1 wherein sintering said green involute scroll form is sintering said green involute scroll form until said involute scroll form comprises 0-20% free graphite.

9. (Original) The method of claim 8 wherein said involute scroll form comprises about 12% free graphite.

10. (Currently Amended) The method of claim 1 wherein providing a metallic powder includes providing iron powder having a plurality of morphologies having at least two average diameters.

11. (Original) The method of claim 1 further including the steps of:
providing metal coated graphite particles; and
mixing said graphite particles with said metallic powder.

12. (Original) The method of claim 11 wherein providing metal coated graphite particles includes providing graphite particles coated with copper.

13. (Original) The method of claim 1 further including the steps of
providing magnesium sulfide; and
mixing said magnesium sulfide with said metallic powder.

14. (Original) The method of claim 1 further including the step of
machining said green involute scroll form after it is removed from said mold.

15. (Original) The method of claim 1 wherein sintering said green involute scroll form is sintering said green involute scroll form until said involute scroll form has a density of more than about 6.8 gm/cm^3 .

16. (Withdrawn) The method of a forming a scroll component comprising the steps of:

providing an involute scroll form comprised of metallic particles;

providing a baseplate; and

coupling said involute scroll form to said base.

17. (Withdrawn) The method of claim 16 wherein coupling said involute scroll form to said base includes capacitors discharge welding the involute scroll form to said base.

18. (Withdrawn) The method of claim 16 wherein coupling said involute scroll form to said base includes providing a brazing material adjacent said involute scroll form; and

applying sufficient heat to melt said brazing material.

19. (Withdrawn) The method of claim 18 wherein providing a brazing material adjacent said involute scroll form is providing a brazing material comprising:

about 30-50% copper;
about 10-20% manganese;
about 3-25% iron;
about 0.5-4% silicon;
about 0.5-2% boron; and
balance is nickel.

20. (Withdrawn) The method of claim 18 wherein applying sufficient heat to melt said brazing material is locally resistance heating the brazing material.

21. (Withdrawn) The method of claim 18 further including the steps of:
providing metal coated graphite particles having a plurality sizes; and
mixing said graphite particles with said metallic powder.

22. (Withdrawn) The method of claim 16 further comprising:
providing a hub comprised of metal powder; and
coupling said hub to said base.

23. (New) The method according to claim 1 further comprising introducing a polymer into the involute scroll component.

24. (New) The method according to claim 23 further comprising machining the involute scroll component.

25. (New) A method for forming a scroll component comprising the steps of:
introducing metal powder into a first mold defining a first cavity having involute and base plate portions to form a green involute scroll form;
introducing metal powder into a second mold defining a hub shaped second cavity to form a green hub form;
placing the green hub form in contact with the green involute scroll form;
and
simultaneously sintering the green involute scroll form and the green hub form to form an one-piece scroll component.

26. (New) The method according to claim 25 further comprising introducing a polymer into pores of the scroll component.

27. (New) The method according to claim 26 wherein introducing the polymer into pores of the scroll component occurs after the simultaneous sintering of the green involute scroll form and the green hub form.

28. (New) The method according to claim 26 further comprising machining the scroll component.

29. (New) The method according to claim 25 further comprising the steps of:
providing a binder; and
combining the metal powder with said binder prior to introducing the metal powder into the first mold.

30. (New) The method according to claim 25 wherein said metal powder comprises iron.

31. (New) The method according to claim 25 further including mixing said metal powder with graphite particles.

32. (New) The method according to claim 25 wherein the metal powder is an iron powder having a mean diameter of greater than 5 micrometers.

33. (New) A method of forming a scroll component comprising the steps of:
forming a green powder metal scroll member having involute and base portions;
forming a green hub form;
placing the hub form in contact with the base portion;
simultaneously sintering the green involute scroll member and green hub form to mate the scroll member to the hub; and
introducing a polymer into pores of the scroll component.

34. (New) The method according to claim 33 wherein introducing the polymer into pores of the scroll component occurs after the simultaneous sintering of the green involute scroll form and the green hub form.

35. (New) The method according to claim 34 further comprising machining the scroll component after the sintering of the involute scroll form and the green hub form.